

(southern slope), 81; middle Plateau, 14; northern Plateau, 66; north Pacific, 38; southern Pacific, 0.

The years of greatest and least precipitation are given in the REVIEW for August, 1894. The precipitation for the current month was the greatest on record at Concordia, 4.98; Atlanta, 8.55. It was the least on record at Sault Ste. Marie, 1.34; Harrisburg, 2.36; Philadelphia, 0.59; Jacksonville, 2.54; Palestine, 0.06; San Diego, 0.00; Salt Lake City, 0.02; Havre, 0.04; Spokane, 0.03.

The total accumulated monthly departures from normal precipitation from the beginning of the year to the end of the current month are given in the second column of the following table; the third column gives the ratio of the current accumulated precipitation to its normal value.

Districts.	Accumulated departures.	Accumulated precipitation.	Districts.	Accumulated departures.	Accumulated precipitation.
<i>Excesses.</i>	<i>Inches.</i>	<i>Perct.</i>	<i>Deficits.</i>	<i>Inches.</i>	<i>Perct.</i>
North Dakota.....	+ 0.10	101	New England.....	- 3.60	88
Ablene (southern Slope)...	+ 3.90	121	Middle Atlantic.....	- 4.90	85
Southern Plateau.....	+ 1.10	115	South Atlantic.....	- 0.30	100
			Florida Peninsula.....	- 2.70	92
			East Gulf.....	- 0.80	98
			West Gulf.....	- 2.00	93
			Ohio Valley and Tenn.....	- 3.70	74
			Lower Lakes.....	- 6.20	73
			Upper Lakes.....	- 5.90	73
			Upper Mississippi.....	- 6.10	75
			Missouri Valley.....	- 2.60	89
			Northern Slope.....	- 0.20	98
			Middle Slope.....	- 0.30	98
			Middle Plateau.....	- 0.90	89
			Northern Plateau.....	- 3.40	69
			North Pacific.....	- 1.30	96
			Middle Pacific.....	- 2.20	88
			South Pacific.....	- 2.30	81

#### HAIL AND SLEET.

The following are the dates on which hail fell in the respective States:

Alabama, 7, 27, 28. Arizona, 4, 6, 12, 21, 22. Arkansas, 11. California, 27. Colorado, 3, 5 to 11, 20, 28, 29, 31. Delaware, 16. Georgia, 27. Idaho, 1, 14, 28. Illinois, 11, 14, 18, 27, 29. Indiana, 6. Iowa, 2, 4, 9, 12, 18, 22, 27, 30. Kansas, 19. Kentucky, 9, 20. Maryland, 6, 10, 11, 16, 31. Massachusetts, 17, 21. Michigan, 9, 11, 17, 18. Minnesota, 4, 5, 9, 13, 14, 16, 26, 27, 28. Missouri, 4, 18. Montana, 8, 25. Nebraska, 4, 7, 8, 10, 11, 12, 18, 22, 23, 27. Nevada, 13, 27. New Jersey, 4, 16. New Mexico, 7, 29. New York, 4, 6, 17, 18, 28. North Carolina, 27. North Dakota, 8, 13, 21, 22, 26. Ohio, 3, 6, 17, 24, 28. Oklahoma, 2. Oregon, 6. Pennsylvania, 5, 6, 11, 13, 18, 24. South Carolina, 26, 28. South Dakota, 2, 7, 13, 16, 21. Tennessee, 14. Texas, 28. Utah, 8, 12, 18, 30. Vermont, 21. Wisconsin, 14, 26, 23. Wyoming, 30.

#### WIND.

The prevailing winds for August, 1895, viz, those that were recorded most frequently, are shown in Table I for the regular Weather Bureau stations.

The resultant winds, as deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart II, where the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a uniform wind of average velocity. These figures indicate the relative extent to which winds from different directions counterbalanced each other.

#### HIGH WINDS.

Maximum wind velocities of 50 miles or more per hour were reported at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes;

extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		<i>Miles</i>				<i>Miles</i>	
Cleveland, Ohio.....	28	53	se.	Huron, S. Dak.....	18	50	sw.
El Paso, Tex.....	5	50	ne.	Huron, S. Dak.....	21	60	s.
El Paso, Tex.....	30	55	ne.	New York, N. Y.....	4	63	sw.
Huron, S. Dak.....	7	65	nw.	Oklahoma, Okla.....	10	50	se.

#### SUNSHINE AND CLOUDINESS.

The quantity of sunshine, and therefore of heat, received by the atmosphere as a whole is very nearly constant from year to year, but the proportion received by the surface of the earth depends largely upon the absorption by the atmosphere, and varies with the distribution of cloudiness. The sunshine is now recorded automatically at 17 regular stations of the Weather Bureau by its photographic, and at 21 by its thermal effects. At two stations records are kept by both methods. The photographic record sheets show the apparent solar time, but the thermometric sheets show seventy-fifth meridian time. For convenience the results are all given in Table XI for each hour of mean local time. The cloudiness is determined by numerous personal observations at all stations during the daytime, and is given in the column of "average cloudiness" in Table I; its complement or clear sky is given in the last column of Table XI.

#### COMPARISON OF SUNSHINE AND CLEAR SKY.

The sunshine registers give the duration of direct sunshine whence the percentage of possible sunshine is derived; the observer's personal estimates give the percentage of area of clear sky. It should not be assumed that these numbers should agree, and for comparative purposes they have been brought together, side by side, in the following table, from which it appears that, in general, the instrumental record of percentages of duration of sunshine is almost always larger than the observer's personal estimate of percentages of area of clear sky; the average excess for August, 1895, is 12 per cent for photographic records, and 14 per cent for thermometric records. The details are shown in the following table:

#### Difference between instrumental and personal observations of sunshine.

Photographic stations.	Instrumental.	Personal.	Difference.	Thermometric stations.	Instrumental.	Personal.	Difference.
Portland, Oreg. *.....	93	88	5	Portland, Oreg. *.....	93	88	4
Salt Lake City, Utah†..	88	52	36	Cincinnati, Ohio *.....	85	61	24
Phoenix, Ariz. †.....	85	54	31	Philadelphia, Pa.....	81	57	24
Helena, Mont.....	81	76	5	Baltimore, Md.....	81	64	17
Galveston, Tex.....	79	72	7	Des Moines, Iowa.....	81	65	16
Washington, D. C.....	78	67	11	Chicago, Ill.....	79	67	12
Dodge City, Kans.....	75	65	10	Portland, Me.....	79	65	14
Santa Fe, N. Mex.....	74	54	20	Detroit, Mich.....	77	63	14
Denver, Colo.....	73	56	16	Little Rock, Ark.....	77	61	16
Cleveland, Ohio.....	69	57	12	St. Louis, Mo.....	76	60	16
Bismarck, N. Dak.....	68	60	8	Louisville, Ky.....	74	58	16
San Diego, Cal.....	67	60	7	Rochester, N. Y.....	72	56	16
Kansas City, Mo.....	66	50	16	New York, N. Y.....	68	56	12
Vicksburg, Miss.....	66	56	10	Boston, Mass.....	67	53	14
Savannah, Ga.....	59	57	2	Marquette, Mich.....	65	48	17
Eastport, Me.....	42	14	28	Columbus, Ohio.....	62	48	14
Cincinnati, Ohio *.....	.....	.....	.....	Atlanta, Ga.....	61	47	14
				New Orleans, La.....	60	48	12
				Wilmington, N. C.....	56	44	12
				Buffalo, N. Y.....	55	45	10
				San Francisco, Cal.....	54	59	- 5

\* Records kept by both methods.

† All values for 15 days only.

‡ Thermometric record discontinued.

§ Photographic record incomplete.

Key West, Fla., Memphis, Tenn., Norfolk, Va., New Haven, Conn., Seattle and Spokane, Wash., discontinued.